

Effects of Radiofrequency Tongue Base Reduction on Voice in Patients with Obstructive Sleep Apnea

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Objectives

To investigate voice change as a complication after radiofrequency tongue base reduction (RTBR) in patients with obstructive sleep apnea (OSA) Study design: Before-and-after study.

Subjects and Methods

Twenty-two patients with suspected velopharyngeal collapse only underwent uvulopalatopharyngoplasty (UPPP group). Twenty-five patients with velopharyngeal and retrolingual collapse underwent concurrent UPPP with RTBR (RTBR group). All patients were evaluated before surgery and at 8 weeks after surgery. Acoustic measures included mean fundamental frequency (mF0), maximal phonation time (MPT), jitter, shimmer, noise to harmonic ration (NHR), hypernasality test, and first three formant frequencies (F1, F2, F3) for sustained vowels. Voice handicap index (VHI) was used to determine subjective voice change.

Results

Postoperative values for mF0, MPT, jitter, shimmer, NHR, hypernasality test, and F1 did not significantly change in either group following surgery. There were the significant decreases at the F2 of /U/ and the F3 of /o/ in the UPPP group, and at the F2 of /o/ and the F3 of /a/, /i/ and /o/ in the RTBR group. Postoperative VHI score was increased only in the RTBR group.

Conclusions

UPPP and UPPP with RTBR have an impact on formant frequencies of vowels. Despite a relatively small number of patients, it is apparent that UPPP with RTBR influences VHI. Patients, especially professional voice users, should be advised of this before considering the surgery.

Key words : Obstructive sleep apnea · Voice · Formant · Radiofrequency · Tongue base.